

# LEVITATION and the FFU Hypothesis





### What is LEVITATION?

- A behaviour-based target discovery project
- Multi-disciplinary team
- Prototyping and delivering advances in:
  - Behavioural tradecraft
  - Hypothesis tradecraft
  - Tradecraft automation



# **Current Hypotheses**

#### **Active**

**FFU** 

Sequential numbers

Obvious selector names

Web search terms

#### **In Development**

GPS waypoints

Devices close to places

Telephony gaps

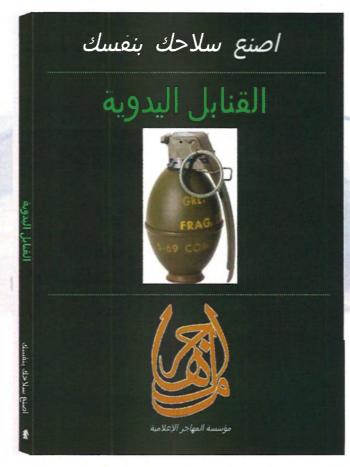
Targets of foreign SIGINT agencies
Missed calls



## FFU Hypothesis

Extremists use Free File
Upload (FFU) sites
differently than the general public.

Al-Qaida uses FFU sites to
distribute Jihadist propaganda
Extremists use FFU sites to
distribute training materials





#### What do we need?

A list of suspect documents

A list of FFU URLs referring to those documents

A list of IPs downloading those URLs

New documents are found by CWOC (CSEC Web Operations Centre) retrieval from URLs, so that's the easy part.



#### **New URLs**

CSEC's web forums team

2<sup>nd</sup> Party reports & alerts

Machine Learning

Learning the textual context for the URLs in web forums

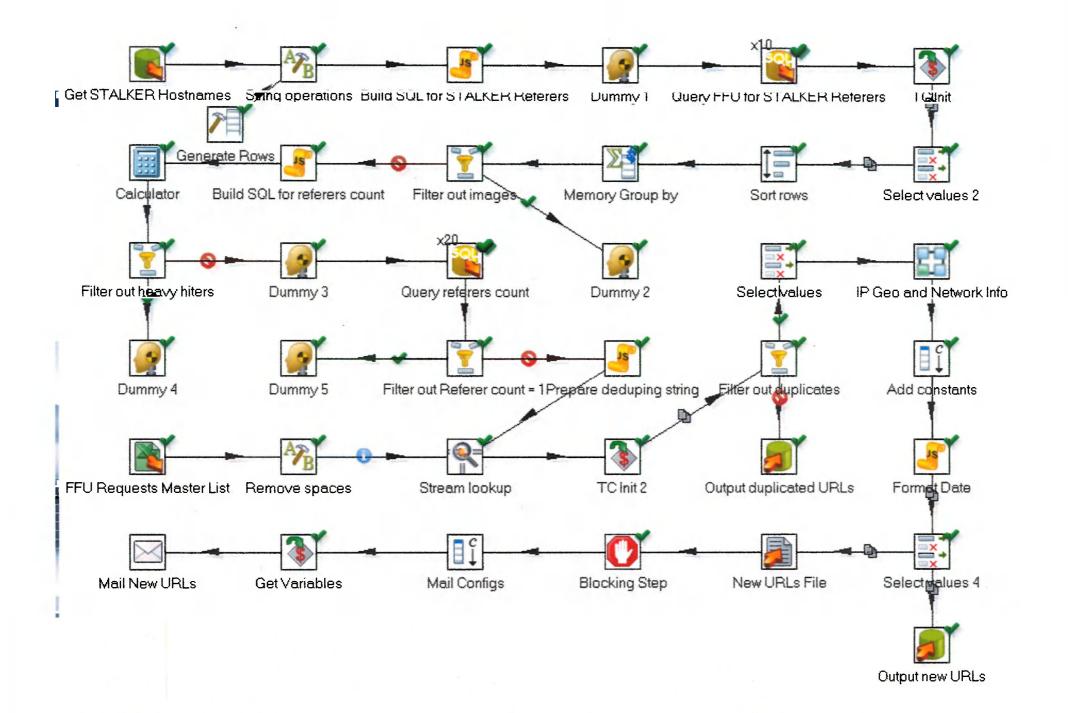
**HTTP Referrers** 

Follow URL referrers back to the originating site

Previous Correlations analysis

Using tech techniques to figure out what else that user was up to at the same time

e.g. Google analytics cookies





### **FFU Events Collection**

ATOMIC BANJO (Special Source) is collecting HTTP metadata for 102 known FFU sites.







We see about 10-15 million FFU events per day All the FFU Events are available thru OLYMPIA



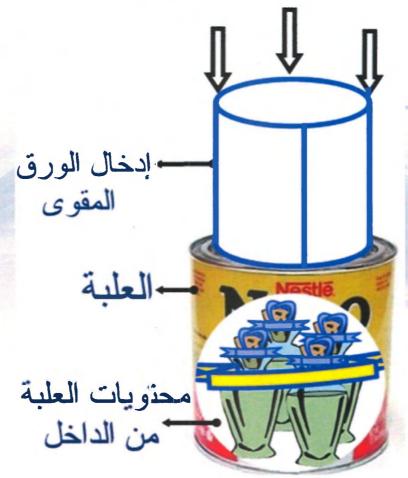
# Looking for a few good documents

We only care about the 2,200 URLs that point to documents of interest.

e.g. How to make a gas bomb www.sendspace.com/file/

Every day we sort through the 10–15M events for the interesting ones.

We're finding about 350 interesting download events per month.



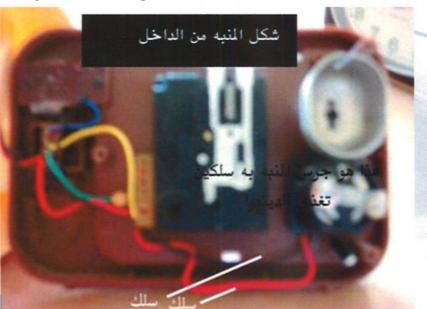


# Documents vary

**Chloroform in a Lowes bucket** 



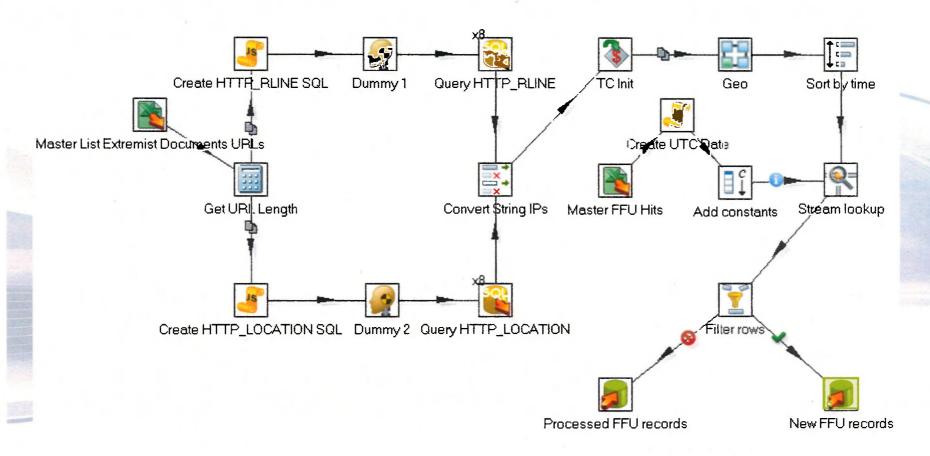




And lots of pictures of cars on fire

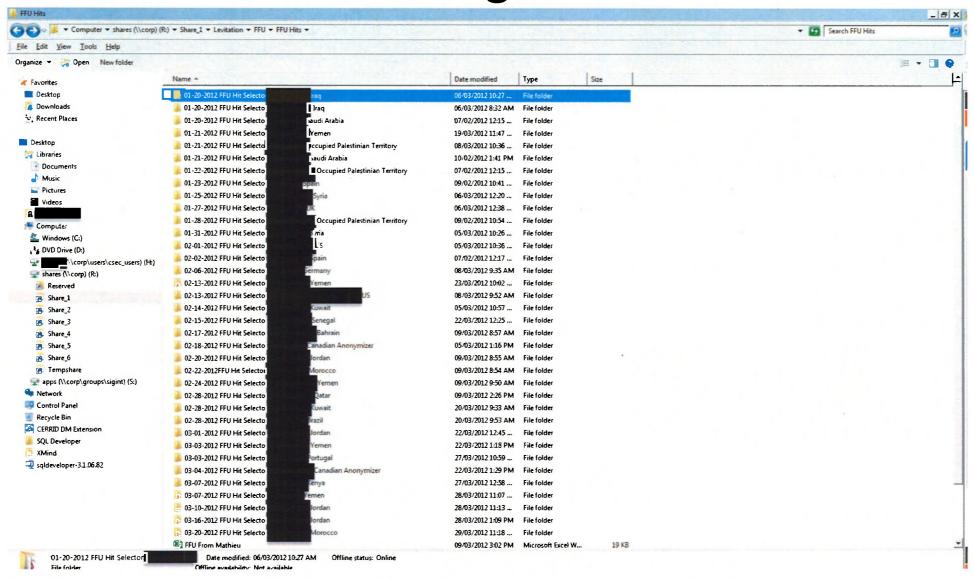


# Filtering out Glee Episodes





# Resulting events



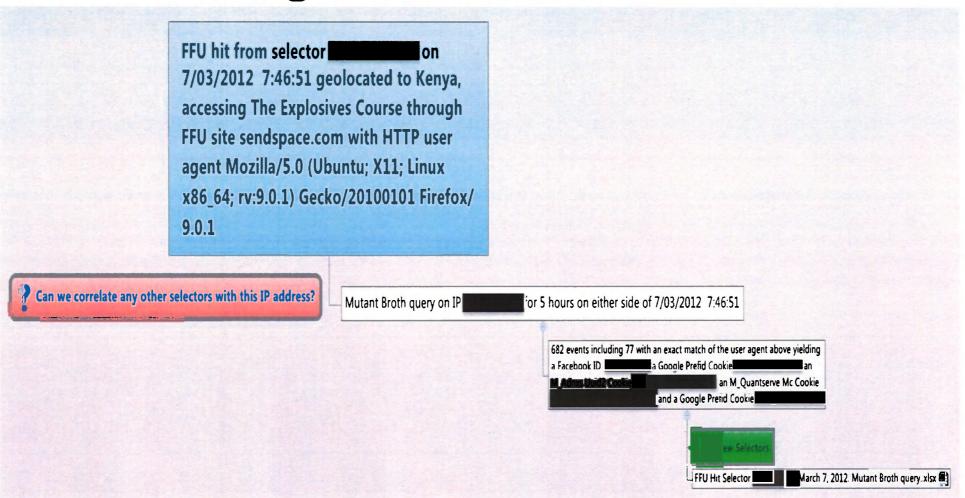


# Start analysis with event info

FFU hit from selector
7/03/2012 7:46:51 geolocated to Kenya,
accessing The Explosives Course through
FFU site sendspace.com with HTTP user
agent Mozilla/5.0 (Ubuntu; X11; Linux
x86\_64; rv:9.0.1) Gecko/20100101 Firefox/
9.0.1

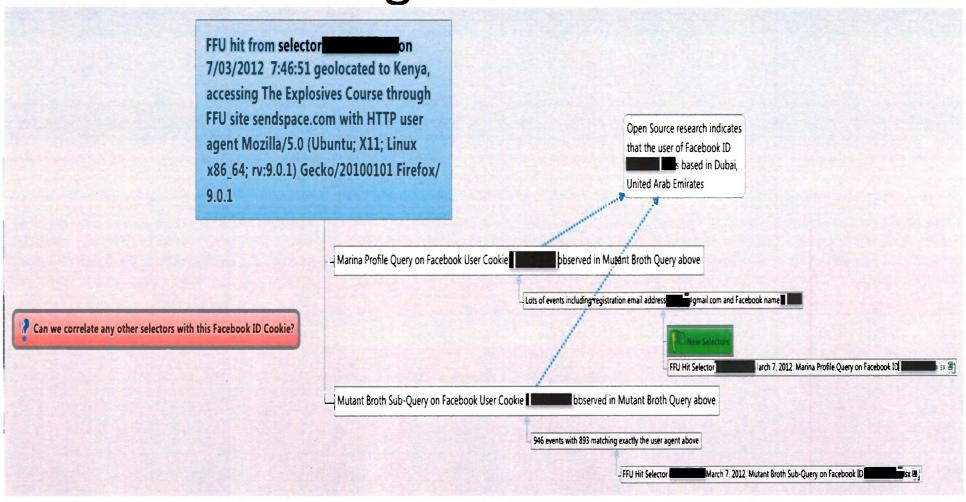


## Correlating other selectors with the IP



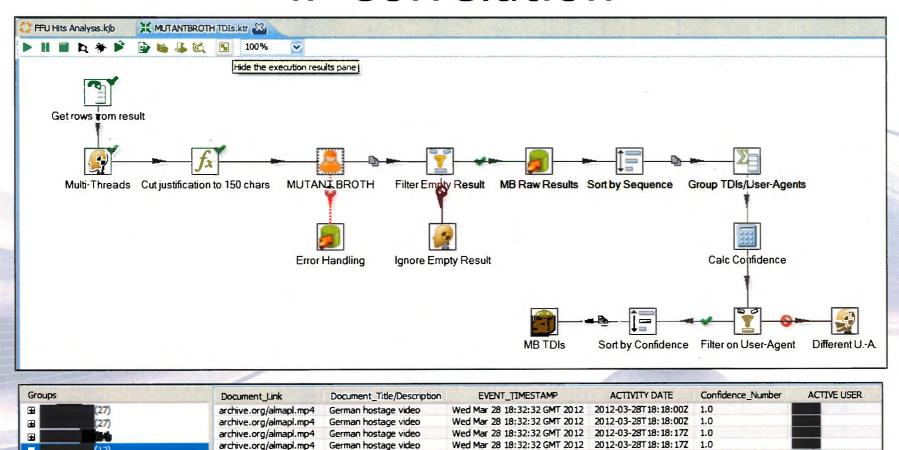


# Correlating Facebook cookie





#### **IP Correlation**



Wed Mar 28 18:23:42 GMT 2012 2012-03-28T18:09:27Z 0.5

Wed Mar 28 18:23:42 GMT 2012 2012-03-28T18:09:27Z 0.5 Wed Mar 28 18:23:42 GMT 2012 2012-03-28T18:18:00Z 0.5

Wed Mar 28 18:23:42 GMT 2012 2012-03-28T 18:18:00Z 0.5

Wed Mar 28 18:23:42 GMT 2012 2012-03-28T18:18:00Z 0.5

Wed Mar 28 18:23:42 GMT 2012 2012-03-28T18:18:17Z 0.5

archive.org/almapl.mp4

archive.org/almapl.mp4

archive.org/almapl.mp4

archive.org/almapl.mp4

archive.org/almapl.mp4

archive.org/almapl.mp4

archive.org/almapl.mp4

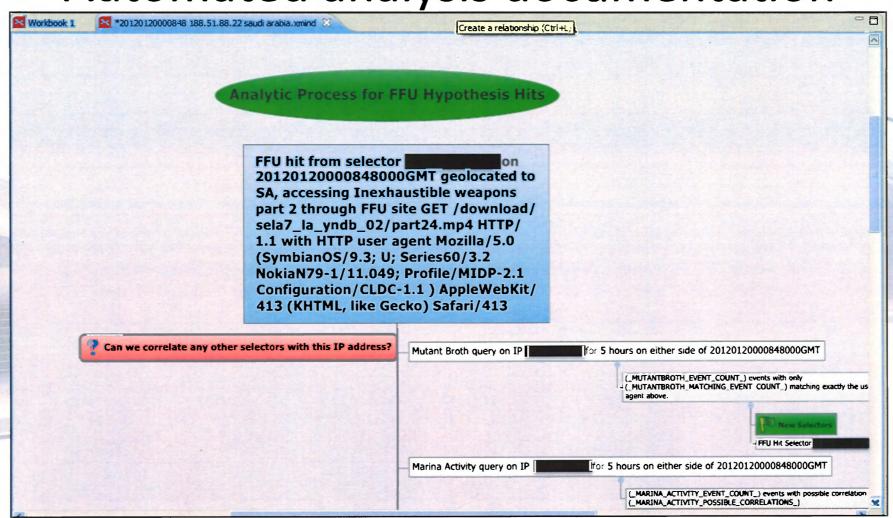
☐ Mozilla/4.0 (compatible; MSIE 6.0; Wir

■ Mozilla/4.0 (compatible; MSIE 8.0; Wir

German hostage video



# Automated analysis documentation





# What happens then?

Compare control and experimental groups to show statistical differences

Analyse experimental group to determine statistical power of the hypothesis

Assemble selectors across all hypotheses

Rank selectors according to the number and power of the hypothesis behaviors they show

Deliver an ordered list of suspects to OCT



# Scoreboard

		Hypotheses				
		FFU				 Totals
	Weights	0.6	0.55	0.52	0.48	
Personae	P1	4	2	0	4	5.42
	P2	4	4	0	1	5.08
	Р3	4	1	0	4	4.87
	P4	3	4	4	0	3.14
		Known	New			



#### Successes

An HTTP-referred URL gave us a German hostage video from a previously unknown target.

An AQIM's hostage strategy. The resulting report was disseminated widely including by the CIA to their counterparts overseas.



## The End

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